National Measurement Office

UK/0126/0099

MI-006

EC type-examination certificate UK/0126/0099

Issued by:
The National Measurement Office
Notified Body Number 0126

In accordance with the requirements of the Measuring Instruments (Automatic Catchweighers) Regulations 2006 (SI 2006/1257) and the Measuring Instruments (Non-Prescribed Instruments) Regulations 2006 which implement, in the United Kingdom, Council Directive 2004/22/EC, this EC type-examination certificate has been issued to:

Avery Weigh-Tronix Ltd
Foundry Lane
Smethwick
West Midlands B66 2LP
United Kingdom

In respect of an automatic catchweighing instrument as described in the descriptive annex and having the following characteristics:

Maximum capacity	Dependant on application
Minimum capacity	Min ≥ 20 e
Scale interval	e ≥ 0.1 g
Number of scale intervals	n ≤ 10,000
Accuracy class	Y(a)

The necessary data (principal characteristics, alterations, securing, functioning etc) for identification purposes and conditions (when applicable) are set out in the descriptive annex to this certificate.

Issue Date: **09 June 2011**
Valid Until: **08 June 2021**
Reference No: **TS0101/0004**

Signatory: **P R Dixon**
for **Chief Executive**

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UKAS PRODUCT CERTIFICATION 0135

BIS Department for Business Innovation & Skills

Descriptive Annex

1 INTRODUCTION

This pattern of an automatic catchweighing instrument, comprising a controller designated the Avery Weigh-Tronix E1105/ E1110 / E1205 / E1210 Series, appropriate conveyors, pack detection and pack flow management devices, and a weighing unit comprising a load receptor and associated load cell(s), is designed to operate as an automatic weight labeller (Category Y).

The instruments are designed to weigh packs statically. Sufficient time must be allowed for the static weight to be correctly taken for each application; a maximum conveyor speed must be determined, secured and checked at verification to ensure that the errors in automatic operation are less than the MPEs.

Pack and labelling information is stored in files called PLUs selectable by the operator for the commodity or labels being processed. Labels are printed for the above transaction data and are applied to the packs automatically. Alternatively, the measurement data can be stored using the Data Storage Device. The data may be transmitted to a host computer for use in other applications, beyond the scope of this approval.

2 FUNCTIONAL DESCRIPTION

2.1 Mechanical

2.1.1 The instrument comprises a frame on which are mounted the modular conveyor sections (typically in-feed, weighing, out-feed). The conveyors' type, number, size and shape are not restricted.

2.1.2 The instrument is designed to be permanently installed and fitted with a level indicator located on the weigh platform.

2.1.3 Weigh platform

2.1.3.1 The weighing device comprises a number of single strain gauge load cells fitted to the weigh platform.

Any compatible load cell(s) may be used providing the following conditions are met:

- There is a respective OIML Certificate of Conformity (R60) or a test certificate (EN45501) issued for the load cell by a Notified Body responsible for type examination under Directive 2009/23/EC.
- The certificate contains the load cell types and the necessary load cell data required for the manufacturer's declaration of compatibility of modules (WELMEC 2, Issue 5, May 2009), and any particular installation requirements. A load cell marked NH is allowed only if humidity testing to EN45501 has been conducted on this load cell.
- The compatibility of the load cells and indicator is established by the manufacturer by means of the compatibility of modules calculation, contained in the above WELMEC 2 document, at the time of verification or declaration of EC conformity of type.
- The load cell transmission must conform to one of the examples shown in the WELMEC Guide 2.4, "Guide for Load cells".

2.1.3.2 The instrument captures the weight when the stability of equilibrium has been reached. The zero-tracking device may be configured to be active when there are no packs on the platform. If a zero has not occurred within 375minutes, the conveyor stops and operation is inhibited until a zero occurs. Once a zero has been performed (semi-automatic zero-setting or zero tracking), weighing continues normally.

2.2 Electrical

2.2.1 The Avery Weigh-Tronix E1105/ E1110 / E1205 / E1210 Series (Figure 1) controller is as described in Evaluation Certificate GB-1395. It must be to Build Standard 5, as designated by 5 on the rating plate.

2.2.2 The system uses pack detection devices (e.g. photocells) and pack flow management devices (e.g. PLC) to determine where and when the packs have to be stopped on the weigh platform. The instrument also comprises a number of motors, drivers and relays to ensure correct pack flow.

2.3 Devices

2.3.1 The controller is provided with the following operational features (firmware):

- Semi-automatic zero-setting (≤ 4% max)
- Zero tracking (≤ 4% max, may be disabled)
- Automatic zero-setting (inhibits weighing if a zero has not occurred within 375minutes)
- Semi-automatic and pre-set tare devices (subtractive)
- Indication of stability of equilibrium
- Zero indicator
- Multi-interval option, with a maximum of 3 partial weighing ranges
- Totalisation
- Static calibration, not accessible to the user
- Data Storage Device, with a maximum of 65,000 data sets
- Digital and analogue outputs for controlling external devices
- Multi-scale option (additional internal A/D module card), with a maximum of 2 scales
- Automatic operation prevented during warm-up (2 min 15sec)

2.3.2 The following features or interlocks are provided:

- Preset Tare value can be displayed temporarily during automatic operation (by pressing the Status key)
- Semi-automatic zero setting not operable during automatic operation
- Tare and Preset Tare devices not operable during automatic operation
- Preset Tare values rounded to the nearest scale interval
- Printing below Min is not allowed
- Conveyor speed setting, not accessible to the user
- Totalised weight is clearly identified and is algebraic sums of printed/stored values
- When no labeller is in use, the recorded data (DSD) must include: date, time, pack weight, Tare or Preset tare if Net is recorded, instrument ID, pack ID (or batch ID when it is impractical to store individual batch IDs, provided the batch can be physically identified), units of measurement
- When no labeller is in use, the instrument must stop when the DSD is full, unless if at verification it can be shown that the DSD capacity and machine throughput ensure only records that are old enough will ever be deleted /

overwritten – otherwise records cannot be overwritten unless they are older than x days, with x being a secured parameter to be determined at verification, manual deletion of data must be prevented unless records are older than x days.

- An approved external DSD may be connected to expand the storage capacity of the system, provided the above requirements are satisfied

3 TECHNICAL DATA

3.1 The instrument has the following technical characteristics:

Power supply	110-240 Vac 50/60 Hz
Maximum tare	- Max
Maximum number of scale intervals	10,000
Accuracy class	Y(a)
Load cell excitation voltage	10 VDC
Minimum load cell impedance	22 Ω
Maximum load cell impedance	1200 Ω
Minimum input voltage per scale interval	0.6 μV
Measuring range minimum voltage	6 mV
Measuring range maximum voltage	20 mV
Fraction of maximum permissible error	Pind = 0.5
Operating temperature range	-10°C to +40°C
Climatic environment	Closed, non-condensing
EM Classification	E1 and E2
Load cell cable (junction box to indicator)	6 core with braided outer screen. 0.5 mm2 per core, flexible PVC overall jacket Maximum length = 69 m (138 m/mm2).

3.2 Documentation and drawings

Description	Document No.
OIML R51 manual	NEU-087459
Schematic diagram (Main board)	SCH25-000926
Schematic diagram (ADC module)	SCH25-000575
PCB assembly (Main board) – E11xx	AWT25-000927
PCB assembly (ADC module)	AWT25-000576
Assembly drawing (E1110)	AWT05-053480
Assembly drawing (E1105)	AWT05-800003
Assembly drawing (E1205)	AWT05-800001
Assembly drawing (E1210)	AWT05-800004
PSU (PS36-24-AV) Schematic diagram	5519
Dimensional drawing (plastic case – E1105, E1205)	61226-366 (Front Cover) 61226-365 (Rear Housing)
Dimensional drawing (metal case – E1110, E1210)	61226-364 (Front Cover) 61226-363 (Enclosure)
Service manual	76103-900

User manual (E1105 and E1110)	76103-899
User manual (E1205 and E1210)	76103-950
Expansion board 1 (analogue) PCB assembly	AWT25-000978
Expansion board 1 (analogue) schematic diagram	SCH25-000977
Expansion board 2 (digital) PCB assembly	AWT25-001122
Expansion board 2 (digital) schematic diagram	SCH25-001150
"SRAM" Expansion board PCB assembly	AWT25-001152
"SRAM" Expansion board schematic diagram	SCH25-001151
"Anybus" AB4306 Profibus DP board	70782-187
"Anybus" AB4136 DeviceNet board	70782-183
"Anybus" AB4007 ControlNet board	70782-184
"Anybus" AB4209 EthernetmodbusTCP board	70782-185
"Anybus" AB4307 EthernetIP board	70782-186

The functions to implement an automatic catchweighing instrument using the Avery Weigh-Tronix E1105 / E1110 / E1205 / E1210 Series are configured on an application-specific basis, and using a combination of Alarms, Trips and Setpoints, within the constraints of section 2.1.2 above and OIML R51-1:2006. A user manual specific to each application should be produced explaining the configuration and operation of the instrument to the end user.

4 PERIPHERAL DEVICES AND INTERFACES

4.1 Interfaces

The instrument may have the following interfaces:

- Load cell 4 or 6-wire shielded connection (hardwired)
- 1 or 2 x RS232/RS485/20 mA (model dependant)
- 1 x serial O/P (to external O-I/P module)
- 10/100 Base T Ethernet
- Trip O/P (3)
- Control I/P (3)
- External PC style keyboard (IBM PS/2)

Note: the load cell cable may be longer than 30 m, provided its length meets the requirement in table 3.1.

4.2 Optional interfaces and PCBs

4.2.1 The instrument may be fitted with any or all of the following optional boards:

(i) load cell interface board (to allow the connection of a second platform, maximum of 16 load cells) and 2 analogue O/Ps (voltage or current),

(ii) digital expansion board with two serial ports, which can be configured as either RS232 or RS485 or RS422, "pulse input" and BCD interface,

(iii) "SRAM" expansion board,

(iv) "Anybus" expansion board – allowing any one of the following additional

fieldbus interfaces:

a. Profibus DP
b. DeviceNet
c. ControlNet
d. EthernetmodbusTCP
e. EthernetIP

4.2.2 The indicator may additionally be configured to allow up to 16 remote I/O interfaces to be connected for driving relays, motors etc. and receive inputs from switches, photocells, etc.

4.3 Peripheral devices

The instrument may be connected to any peripheral device that has been issued with a test certificate or parts certificate by a Notified Body responsible for Annex B (MI-006) under Directive 2004/22/EC in any Member State and bears the CE marking of conformity to the relevant directives; or

A peripheral device without a test certificate may be connected under the following conditions:

- it bears the CE marking for conformity to the EMC Directive;
- it is not capable of transmitting any data or instruction into the weighing instrument, other than to release a printout, checking for correct data transmission or validation;
- it prints weighing results and other data as received from the weighing instrument without any modification or further processing; and
- it complies with the applicable requirements of Paragraph 8.1 of Annex I.

5 APPROVAL CONDITIONS

The certificate is issued subject to the following conditions:

5.1 Legends and inscriptions

5.1.1 The instrument bears the following legends:

'CE' marking
Supplementary metrology marking
Notified body identification number
Accuracy class
Serial number
Manufacturers mark or name
Certificate number
Max
Min
e =
T =
Temperature-range
Power supply
Pneumatic pressure (if applicable)
Maximum speed / pack rate

5.2 Software

5.2.1 The version numbers of the "legally relevant software" is either "768C App Basic" for the E1105 / E1110 controller, or "769C App Advanced" for the E1205 / E1210 controller.

5.2.2 The software of the pack flow management device (e.g. PLC) does not contain any legally relevant software. The software sends commands to the indicator in response to inputs such as pack detection, speed, weighing operation from the indicator. The software is application specific, the operation of which must be described in the application user manual required in section 3.2.

6 LOCATION OF SEALS AND VERIFICATION MARKS

6.1 The 'CE' marking, supplementary metrology marking and certificate number are located on the instrument, and must be clearly visible. The CE mark shall be impossible to remove without damaging it. The data plate shall be impossible to remove without it being destroyed.

The markings and inscriptions shall fulfil the requirements of Paragraph 9 of Annex I of the Directive 2004/22/EC.

6.2 Access to the configuration and calibration facility is password protected. The indicator increments a configuration and/or calibration value (designated as "config Event" and "Calibration Event" respectively) each time the indicator is re-configured and/or calibrated. The value(s) are recorded on a tamper evident label on or near the rating plate. The current value can be displayed by selecting either:-

"Super (F2)" – "Alter (F3)" – "→(F3) x 3" – "Audit (F1)" – "View (F2)", for the E1105 / E1110 controller, or

"Super (F2)" – "Alter (F3)" – "→(F5) x 3" – "Audit (F1)" – "View (F2)", for the E1205 / E1210 controller.

The dot matrix display then shows:

"Audit Trail" – "Calibration Events xx" – "Config Events xx".

Pressing "Escape (ESC)" - "Exit (F1)" - "Exit (F1)" returns the indicator to normal operating mode.

6.3 Alternatively, physical sealing may be used to protect the calibration and legally relevant parameters. Calibration and configuration modes can be entered via a push button located on the main PCB which is accessed by removing the front cover of the sealed enclosure

6.4 Components that may not be dismantled or adjusted by the user (load cell, calibration mode) will be secured by either a wire and seal or tamper evident label and securing mark. The securing mark may be either:

- a mark of the manufacturer and/or manufacturer's representative, or
- an official mark of a verification officer.

7 ALTERNATIVES

There are currently no alternatives.

8 ILLUSTRATIONS

Figure 1 E1105 and E1110 controllers
Figure 2 E1205 controller
Figure 3 Rating plate

9 CERTIFICATE HISTORY

ISSUE NO.	DATE	DESCRIPTION
UK/0126/0099	09 June 2011	Type examination certificate first issued.

Figure 1 E1105 and E1110 controllers

Figure 2 E1205 controller

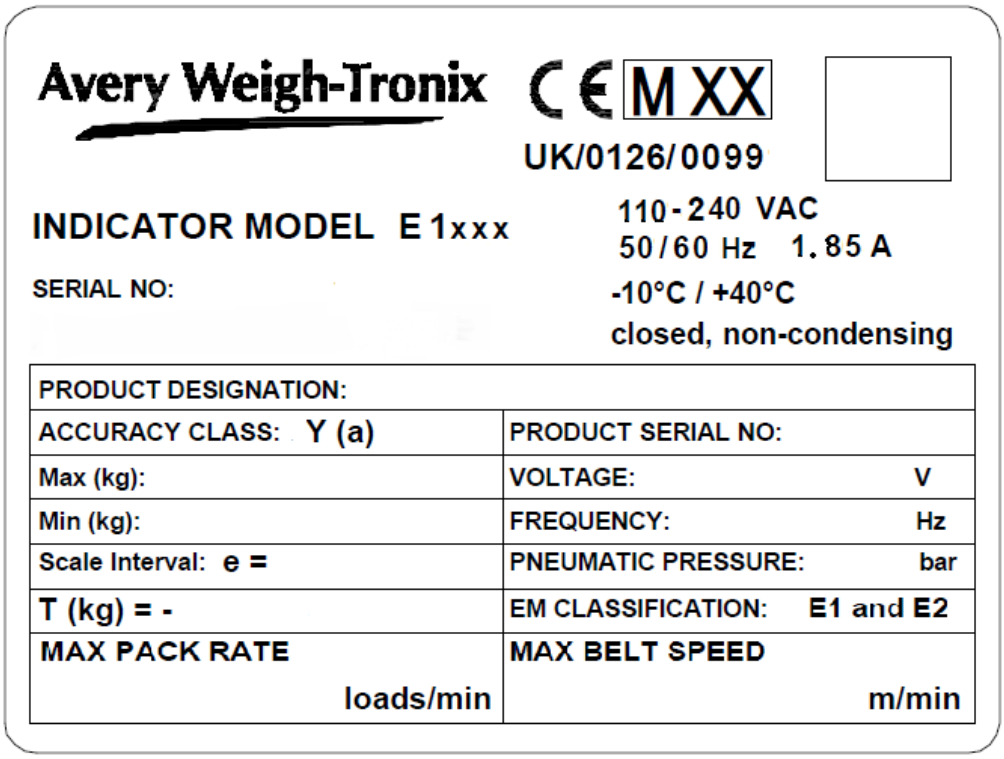

Figure 3 Rating plate

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